

## AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

## Listing of Claims:

- 1. (original) A composition of mammalian leukemia stem cells, wherein at least 50% of the cells in said composition are said leukemia stem cells (LSC).
  - 2. (canceled)
  - 3. (original) The composition according to Claim 1, wherein said LSC are human cells.
- 4. (original) The composition according to Claim 3, wherein said LSC have the cell surface phenotype of a hematopoietic progenitor cell, but have acquired an activated  $\beta$ -catenin pathway.
- 5. (original) The composition according to Claim 4, wherein said cells are Thy-1<sup>-</sup>, IL-7R $\alpha$  (CD127)<sup>-</sup>, and lineage panel<sup>-</sup>.
- 6. (original) The composition of Claim 5, wherein said cells are further characterized as IL-3R $\alpha^{lo}$  CD45RA $^{+}$ .
- 7. (original) The composition of Claim 6, wherein said granulocyte monocyte committed progenitor cells are mouse cells and are further characterized as Fc<sub>Y</sub>R<sup>+</sup>CD34<sup>+</sup>.
- 8. (original) A method of enrichment for a composition of LSC, the method comprising: combining reagents that specifically recognize Thy-1, IL-7R $\alpha$  (CD127), and a lineage panel with a sample suspected of comprising LSC; and
  - selecting for those cells that are Thy-1<sup>-</sup>, IL-7R $\alpha$  (CD127)<sup>-</sup>, and lineage panel<sup>-</sup>.
- 9. (original) The method according to Claim 8, wherein said sample is a blood sample from a leukemia patient.

10. (original) The method according to Claim 9, wherein said leukemia patient is a chronic myelogenous leukemia patient.

## 11-14. (canceled)

15. (original) A method of phenotyping a leukemic condition, the method comprising:

combining a hematologic sample from a patient suspected of said leukemic condition with specific binding members that are sufficient to distinguish the distribution of cells with hematopoietic stem and progenitor subsets;

determining the distribution of progenitor cells between said subsets.

wherein the distribution of progenitor cells is indicative of the phenotype of said leukemic condition.

- 16. (original) The method according to Claim 15, wherein said leukemic condition is MDS.
- 17. (original) The method according to Claim 15, wherein said leukemic condition is a myeloid leukemia.
- 18. (original) The method according to Claim 15, wherein said myeloid leukemia is CML or CMML.
- 19. (original) The method according to Claim 15, wherein said hematopoietic stem and progenitor subsets include one or more of HSC, CMP, MEP and GMP.
- 20. (original) The method according to Claim 15, wherein said specific binding members are antibodies.
- 21. (original) The method according to Claim 20, wherein said antibodies include specificities for CD34 and CD38.
- 22. (original) The method according to Claim 21, wherein said antibodies further include specificities for IL-3R and CD45RA.
- 23. (original) The method according to Claim 21, further comprising antibodies specific for a lineage panel.

- 24-25. (canceled)
- 26. (original) A method of inhibiting the proliferation of an LSC, the method comprising: contacting said LSC with an agent that inhibit the Wnt/β-catenin pathway.
- 27. (original) The method according to Claim 26, wherein said agent comprises axin, a polynucleotide encoding axin and operably linked to a transcriptional regulatory element expressed in said LSC, or a mimetic of axin.
  - 28. (new) A method of phenotyping a leukemic condition, the method comprising: introducing into a hematologic sample from a patient suspected of said leukemic condition detecting the presence of expression of said detectable marker, wherein expression of said marker is indicative of the phenotype of said leukemic condition.
- 29. (new) The method according to Claim 28, wherein said marker is a fluorescence producing protein.
- 30. (new) The method according to Claim 28, wherein said transcriptional response element regulated by  $\beta$ -catenin is a LEF-1/TCF binding sequence.
  - 31. (new) The method according to Claim 28, wherein said leukemic condition is MDS.
- 32. (new) The method according to Claim 28, wherein said leukemic condition is a myeloid leukemia.
  - 33. (new) The method according to Claim 28, wherein said myeloid leukemia is CML or CMML.
- 34. (new) The method according to Claim 28, wherein said detecting is performed by flow cytometry.
- 35. (new) The method according to Claim 28, wherein said detecting is performed by confocal microscopy.